The process of smoking acquisition among girls and boys (year 8) at Balga Senior High School

Sharon McBride

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THE PROCESS OF SMOKING ACQUISITION AMONG
GIRLS AND BOYS (YEAR 8) AT BALGA SENIOR HIGH SCHOOL

By

Sharon McBride
Diploma of Teaching

A Thesis submitted in partial fulfilment of the requirements for the award of Bachelor of Education with Honours in the School of Education, Western Australian College of Advanced Education.

Date of Submission: January 1990
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ABSTRACT

Many smokers acquire their habit during adolescence, largely because of social forces experienced by people in that age group. In Australia, more girls than boys are smoking, and an increasing number of women are contracting diseases associated with smoking. More women are dying from Lung Cancer and female smokers make themselves vulnerable to a range of disorders related to fertility and pregnancy. The fact that more girls are taking up regular smoking has become an important health concern.

This study explores gender related differences in smoking acquisition among a sample population of one hundred and six year eight students attending Balga Senior High School, 1989. Balga is a northern suburb of Perth where the population is predominately of lower socio-economic status. Students completed a twenty nine item questionnaire measuring prevalence patterns of smoking and factors that influence taking up smoking on a regular basis.

In real terms, more girls were smoking than boys, and there were more regular smokers in this sample population compared with year eights generally in Western Australia. These results however were not statistically significant. Several gender related differences in the taking up of regular smoking were identified. Of statistical significance were attitudes towards weight control and smoking, and having a sister who smoked regularly. Boys who were regular smokers were more likely to have a sister who smoked and were more likely to regard smoking as an aid to weight control.
"I certify that this thesis does not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any institution of higher education and that, to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text."

SHARON McBRIEDE
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CHAPTER 1
INTRODUCTION

Background to the Study

Cigarette smoking has been widely recognised as a major and preventable cause of mortality and morbidity in Australian society (Hill, Willcox, Gardner & Houston, 1987 and Gliksman, Dwyer, Wlodarczyk & Pierce, 1989). Most people who smoke acquire the habit in adolescence when certain developmental and social forces are evident. Armstrong, de Klerk, Stean, Dunn & Dolin (1989) suggest that when smoking begins at a young age, there are significant implications for future smoking related disease. Health Education programmes in schools have been implemented at primary and secondary level, but so far, have had little impact (Clark & Shean, 1989). In fact, the number of teenage girls taking up smoking has increased in the 1980's, and the age of onset has decreased for both boys and girls. A recent Australian study has found that by the age of fifteen, 32% of girls and 26% of boys smoke on a regular basis (Gliksman et al., 1989).

This study focuses on the year eight population of Balga Senior High School. A twenty nine item questionnaire explores the smoking patterns of this group and investigated the reasons why students smoke. Particular reference will be made to gender-based differences. Smoking prevalence of the Balga students was compared with statistics from a Western Australian study carried out in 1987 and reported on by Clark & Shean (1989). This study provides some base information about smoking prevalence patterns among children in Western Australia.
The escalation of smoking prevalence among women and girls has been the focus of much research attention in several countries during the last ten years. Various studies have identified differences between boys and girls in the acquisition of the smoking habit (Flay, d'Arernas, Best, Korsall and Ryan, 1983, Fraser, 1983 and Gliksman et al., 1989). A review of the literature has facilitated the identification of several gender-based differences. Items included in the questionnaire have been developed to investigate these differences.

Data collected from Balga students was analysed with a view to making recommendations that will increase the relevance and effectiveness of interventions employed by the Health Education programme. Year eight students in Western Australia receive the same material from the Health Education K-10 syllabus irrespective of gender, socioeconomic status or locality. Such factors may influence the success of intervention strategies and should be considered before lessons are developed. The Health Education K-10 syllabus contains limited recommended processes for adapting content and methods. Modifications such as these allow for flexibility to meet the needs of the local school community.
The Research Questions and Hypotheses

The purpose of this study is to explore gender-based differences in smoking acquisition, and to investigate prevalence patterns and the reasons for initiation of smoking. Three research questions are proposed. The research questions have also been stated in null hypothesis form for statistical analysis.

1. Is smoking prevalence higher for girls than it is for boys among year eight students at Balga Senior High School?
2. Is smoking prevalence among year eight students at Balga Senior High School higher than other year eight students in Western Australia?
3. Are the reasons for taking up smoking among year eight students at Balga Senior High School the same for boys and girls?

The Research hypotheses for statistical analysis are as follows:

1. Smoking prevalence is the same for boys and girls among year eight students at Balga Senior High School.
2. Smoking prevalence among year eight students at Balga Senior High School is the same as other year eight students in Western Australia.
3. The reasons for taking up smoking among year eight students at Balga Senior High School are the same for boys and girls.
Theoretical or Conceptual Framework

The conceptual model for this study is derived from Green's PRECEDE model (Green et al., 1980). The PRECEDE model explains health behaviour in terms of Behavioural and Non-behavioural causes. The Non-behavioural causes identified by Green et al. (1980), are those over which the individual has little or no control. They include age, sex, and school achievement. The Behavioural factors have been divided into three categories: Predisposing factors, Enabling factors and Reinforcing factors.

The model for this research is shown in Figure 1. It illustrates the relationship between the various components and their influence on smoking behaviour. The model shows that smoking behaviour is influenced by several Behavioural causes which include Predisposing factors, such as the individual's knowledge, attitudes, values and perceptions. These factors predispose an individual to a certain type of smoking behaviour. Reinforcing factors include the attitudes and behaviour of parents, siblings and friends, and the media. These factors influence the individual significantly, especially children and young adolescents who are particularly impressionable. Enabling factors are the third classification of Behavioural Causes. Included are such factors as accessibility and availability of cigarettes. Cigarettes are cheap and freely obtainable, even though it is illegal to sell cigarettes to children under the age of eighteen. Enabling factors are therefore not an issue for this study.
This model indicates that Predisposing and Reinforcing factors are not mutually exclusive. Parents' attitudes toward smoking may at first influence a child not to smoke. When that child, however, takes up smoking, perhaps due to peer pressure, parents may come to accept this habit. The parents may in turn change their own attitudes toward smoking in order to overcome cognitive dissonance (Festinger, 1957).

In particular, this study focuses on the Behavioural causes of smoking in relation to the specific Non-behavioural factor of gender. The variables of age and socioeconomic status remain constant in this sample as students are from a similar socioeconomic background and are of one age group. School achievement is assumed to be similar among the sample population. School achievement will be investigated in the questionnaire to test this assumption.

The model shows how health behaviours, in this case smoking, ultimately effect the quality of life of the individual. An outcome of this study will be some recommendations to assist in the development of an effective and relevant Health Education programme for students of this population.
Figure 1

**BEHAVIOURAL CAUSES**

**PREDISPOSING FACTORS**
- eg Individual's knowledge
- attitudes values
- perceptions

**REINFORCING FACTORS**
- eg attitudes and behaviour of parents, siblings, peers, media

**ENABLING FACTORS**
- eg availability and accessibility of cigarettes

**CAUSES OF SMOKING BEHAVIOUR**

**NON BEHAVIOURAL CAUSES**
- eg age, sex, socioeconomic status, school achievement

**SMOKING BEHAVIOUR**
- eg experimentation and consumption of cigarettes

**SMOKING HEALTH PROBLEMS**

**QUALITY OF LIFE**
Cigarette smoking has been widely recognised as one of the most preventable causes of death and consequently, research and literature pertaining to it are in abundance. This literature review focuses on reasons for adolescent smoking with particular reference to those reasons which are gender-related. The patterns of smoking among adolescents in Australia and Western Australia will also be explored.

**Smoking Acquisition**

The Australian Council on Smoking and Health (A.C.O.S.H.) (1989) reports that in Australia, 75% of adults who smoke began their habit during adolescence. That smoking begins during adolescence appears to be undisputed in research from around the world. The College of Physicians (1977) conclude that most children are aware of cigarettes by the age of five and may even have played with them whether their parents were smokers or not. Some may have even tried smoking, possibly with parental encouragement. By the age of ten, as many as a third of all children will have experimented with smoking, though regular smoking does not usually occur until adolescence. Murray, Swan, Bewley and Johnson (1983) note that during adolescence, the prevalence of smoking steadily increases. Gritz (1986) notes that the mean age of smoking initiation has decreased for both boys and girls throughout this century.
A longitudinal study completed in Britain found that prior experimentation was a strong predictor of becoming a regular smoker, and therefore, children should be discouraged from even trying a cigarette (McNeill et al., 1988). Musk & Shean (1988, p.481) support this in saying "...the younger a person is when commencing to smoke, the less likely it is that the person will ever cease smoking".

The experimental phase differs from boys to girls. In Western Australia, boys tend to smoke their first cigarette at an earlier age than girls (A.C.O.S.H., 1985 and Clark & Shean, 1989). Studies carried out elsewhere in Australia and in other countries indicate that this is a widespread phenomenon (College of Physicians, 1977, Surgeon General's Report, 1980 and Lynch, et al. 1980).

Table 1. shows some data collected by Lynch et al. (1980) in Tasmania. Students were asked at what age they first smoked a cigarette. The results illustrate that boys tend to earlier experimentation.

Table 1 Age when First Cigarette was Smoked, 13 Year Old Smokers

<table>
<thead>
<tr>
<th>Age of First Cigarette</th>
<th>B %</th>
<th>G %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 7 yrs</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>7 yrs</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>8 yrs</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>9 yrs</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>10 yrs</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>11 yrs</td>
<td>23</td>
<td>27</td>
</tr>
<tr>
<td>12 yrs</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>13 yrs</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>
Fraser (1987) reports that regular smoking is often preceded by up to two years of experimental smoking. This is usually a period of low consumption leading to regular smoking whether that was the intention or not. He adds that experimental smoking for girls is often less extensive and initiated later than for boys. Despite this, more girls are taking up the habit in numbers equalling and sometimes surpassing that of boys. McNeill et al. (1988) report that being a girl is one of the strongest predictors of future smoking behaviour. Clark & Shean (1989) state that by years nine and ten, Western Australian girls have a rapid increase in experimentation and a significantly higher prevalence of smoking than boys. Important to note is that the younger the smoker, the greater the overall health risk as time goes by. The smoker who begins at a younger age will smoke more cigarettes in his/her lifetime. There is a correlation between the net number of cigarettes smoked and the risk of smoking related diseases. In addition, Musk & Shean (1988) report that if onset can be delayed, it is possible that it can be prevented altogether.

A longitudinal study conducted by Chassin, Presson, Bensonberg, Corty, Olshavsky & Sherran, (1981) showed that intention to smoke is an important predictor for future smoking behaviour. There were no significant sex differences between intention to smoke and future smoking behaviour, but it is an important consideration because those children who state their intention to smoke are
particularly at risk in later years. These at risk children may be grouped together for intervention strategies.

**Females and Smoking**

A great deal of interest has focussed on the increased prevalence of female smokers in recent years. The Surgeon General's Report (1977) and Gritz (1986) suggest that changes in smoking attitudes and behaviour among females reflect broader social forces and changing sex roles. A quote from Urberg & Robbins (1981, p.354), shows an extension of this idea.

Smoking for many years was seen as a masculine behaviour. Smoking by women was clearly disapproved of by large segments of society. Although changes in women's roles have expanded the range of behaviour acceptable for women, this past history makes it unlikely that males and females take up smoking for the same reasons.

Gritz (1986) reports some figures for female smoking from the United States that illustrate these changes. In 1935, 18.1% of women were smokers and by 1965 this figure had risen to 33.3%. This figure dropped to 29.5% in 1983. In 1935, male smokers constituted 52.5% but by 1983, numbers had fallen to 35.8%. Gritz also notes that the changes in women's smoking habits paralleled advertising campaigns featuring females that began in the mid to late 1920's. Unfortunately, this trend in women's smoking habits has been mirrored by many smoking related problems that are unique to women. In the United States, lung cancer now kills more females than does breast cancer (Gritz, 1986).
In addition to those diseases that afflict many smokers, women face the danger of difficulties during pregnancy, fertility problems, menstrual disorders, cancer of the cervix and endangered health of unborn children if they choose to smoke (Surgeon General's Report, 1980, Musk & Shean, 1988 and A.C.O.S.H., 1989)

**Why Adolescents Smoke**

There have been many documented reasons why a child may smoke. These reasons are developmental rather than related to any intrinsic value of the cigarette. Few people find smoking a pleasant experience when they first try (Flay et al., 1983). The motivation for smoking for the first time is largely different to those influences experienced by older smokers. Of importance to note is that smoking prevalence significantly increases after children leave primary school and begin secondary school (Surgeon General's Report, 1980, Flay et al., 1983 and Reid, 1985). Some of these influences appear to affect boys and girls differently while others have a general effect. Researchers do not always agree whether or not the influence is gender-specific.

**Smoking and the Family**

The effect of parental smoking is, along with peer influence, an outstanding influence on the future smoking behaviour of the child. These major pressures have been reported by many studies. The College of Physicians (1977), Gritz (1982), Murray et al. (1983) and Gliksman et al. (1989) all agree that girls are more likely to smoke if their mothers are smokers. Boys, however, are likely to smoke if a parent does, but the gender of the smoking parent is not significant. Flay et al.
(1983) did not make this distinction saying that the influence of same-sex family members was important. They added that the parents' attitudes towards smoking, whether of disapproval or approval, was important to the child if these attitudes were reflected in the parents' behaviour. Children are likely to perceive smoking as a normal adult behaviour if their parents smoke, even if the parents expressed disapproval of the habit. Armstrong et al. (1989) found that both boys and girls were affected by the perceived attitude of their parents. If children perceive their parents' attitude to be one of disapproval then they are less likely to smoke.

Several studies note that same-sex siblings are influential role models, particularly when the sibling is older. Flay et al. (1983, p.137) writes that "The total number of smokers in a young person's environment is also influential, with more smokers increasing the probability of subsequent smoking by the youngster." Research has consistently shown that this is true. In Australia, studies by Gliksman et al. (1989) and Fraser (1983) support this. Elsewhere the evidence is similarly supportive (College of Physicians, 1977, Surgeon General's Report, 1980, Urberg & Robbins, 1981, Gritz, 1983, Alexander et al., 1983, Reid, 1985 and McNeill et al., 1988). Armstrong et al. (1989) state that the sibling effect should be treated with caution because a child may begin smoking for the same reasons as his/her sibling and not necessarily because the sibling smokes.

Gritz (1986), suggests that parents and older siblings who smoke facilitate a positive attitude towards smoking. The adolescent learns how, when and where smoking is appropriate
and becomes accustomed to the smell and sight of cigarettes. Furthermore, the child will have been passively exposed to many of the health risks of smoking.

**Smoking, Peers and Conformity**

Peer pressure, or influence of a social reference group, strongly effects the young adolescent. Barton et al. (1982) report that early adolescence is the developmental stage of maximum conformity to peer norms; individuals become most aware of their own image in the eyes of others at this time. Conformity to peer norms peaks for girls at about twelve years of age and for boys at fifteen. Unfortunately, many teenagers perceive smoking to be more common than it is (Surgeon General's Report, 1980). Urberg & Robbins (1981, p. 355) write "One of the single best predictors of adolescent smoking is peer smoking."

Gritz (1986) also purports that peer influence is most important. Hypersensitivity to peer rejection can lead to smoking. Biglan et al. (in Gritz, 1986) report that 75% of first cigarettes are smoked with another teenager. Friedman et al. (in Gritz, 1986) add that 50% of first cigarettes are smoked with a friend and 7% when a parent is present.

In the Surgeon General's Report (1980), it is suggested that girls show a greater need for peer help and reassurance, and closeness to their friends. They show concern for what is socially desirable and are therefore more vulnerable to the influence of smoking peers. Piepe, Cattermole, Charlton, Morey, Morey & Yerrell (1988) agree that more girls than boys smoke to be with their friends. Barton (1982) adds that girls
show lower self esteem and greater self consciousness, making them particularly vulnerable to adopting cigarette smoking to acquire the "correct" social image. Freedman (in Gritz, 1986 p. 72) claims;

Adolescent females have been characterized by cognitive and emotional immaturity, hypersensitivity to peer rejection, vulnerability to impulsive behaviour, and difficulty in acquiring a positive body image. The combination of these four dimensions makes the teenage female exquisitely vulnerable to the seductive allure of smoking.

Gritz in her earlier work in 1982, had suggested that girl smokers appear socially confident and extroverted, whereas boy smokers are described as socially unsure. Urberg & Robbins (1981) report that boys perceive smoking to be beneficial as "social coping mechanism". Reid (1985) concludes that low self esteem is an important characteristic of adolescent smokers in general.

Related to peer influence and conformity is precocity or appearing to be grown up. This has been cited as a motivator for teenage smoking. Brynner (in McNeill et al., 1988) uses the term "anticipation of adulthood" to describe a measure of the extent of precocious behaviour. Early involvement with smoking, drinking alcohol and sexual involvement are examples of precocity or "anticipation of adulthood". Flay et al. (1983, p.150) supported this with "...an important incentive for an adolescent smoker might be the desire for accelerated maturity." This appears to be particularly pertinent when the
child is not doing well at school and is in need of other social reinforcers. McNeill et al. (1988) maintain that "anticipation of adulthood" is important for both sexes, but more so for boys.

Cigarette Advertising and Brand Preference
Evidence points towards the media and cigarette advertising as playing the dual role of causing initiation of smoking, and reinforcing the social pressures to smoke that are experienced by adolescents. Chapman (1982) believes that advertisements can cause children to begin smoking and persuade non-smokers to smoke. In Norway, a ban on all cigarette advertising was followed by a marked fall in children's smoking, indicating that advertising caused children to start smoking (Reid, 1985). Castledon (1987) states that a child's decision to smoke is motivated by social factors and that media influence is important; 80% of children consider that advertisements influence them.

Castledon (1987) believes that cigarette companies have been focussing on young women because they are earning more than in previous decades and have a greater disposable income thus making them a useful marketing target. According to Castledon, women are more vulnerable to addiction and therefore less likely to cease smoking. The increased focus on women in cigarette advertisements could explain why more girls are smoking, although cigarette companies claim that their aim is to change brand preference and not encourage new smokers. Gritz (1986, p.75) asserts that;
...the allure of cigarette advertisements targeted at women can be immense. Every psycho-social attribute and culturally relevant message valued in this age group can be found in cigarette advertisements...

Barton et al. (1982) and Gritz (1986) report that adolescents adopt brands that reflect their own ideal self concept. Cigarette advertisements portray smokers as being sophisticated, socially acceptable and attractive. If the teenager's ideal self image matches this image, he/she is in danger of initiating smoking.

According to Hill et al. (1987), in Australia, the most popular brands among adolescents are; Winfield (37%) and Peter Jackson (15%), with significant sex-related difference in the preference for Alpine. Girls (5%) preferred this brand.

Armstrong et al. (1989) found that there had recently been a shift in brand preference towards Peter Jackson. This shift possibly reflects an escalation of advertising from Peter Jackson.

Adolescents tend to smoke the most highly advertised brands (Chapman, 1982, Castledon, 1983, Musk & Shean, 1988 and Armstrong et al., 1989). Chapman adds that Winfield is the clear and very significant leader in brand preference followed by Benson and Hedges, Alpine and Marlboro, but he determined that there was no gender-related brand preferences. Castledon (1983) disagreed reporting that boy smokers choose brands promoted with male images (eg. Marlboro), and girls prefer
brands marketed for women (eg, Alpine). Adolescent trends generally reflect the adult preference patterns.

Armstrong et al. (1989) found that assessing the influence of advertising was difficult. They do however suggest that, for boys and girls, approval of cigarette advertising was related to smoking behaviour.

Other Reasons for Smoking
Socioeconomic status, income, educational background and aspirations, and school achievements are frequently stated as important indicators of smoking behaviour. Aaro et al. (1986) note an inverse correlation between socioeconomic status and smoking prevalence. This is supported in a number of studies (College of Physicians, 1977, Surgeon General's Report, 1980, Gritz, 1982, Flay et al., 1983 and Pederson, 1986). Conflicting evidence appears from Gliksman et al. (1989, p. 81) who stated that "There were no significant differences in the prevalence of current cigarette smokers with differences in socioeconomic status". Flay et al. (1983) offered another possibility that this relationship between smoking and socioeconomic status is prevalent among boys, but not so with girls. It may even be reversed for girls if increased smoking among girls is due to changing sex roles and associated pressures. There may be a positive correlation in the future.

Poor school achievement and academic aspirations have been consistently linked to socioeconomic status and smoking behaviour. Flay et al. (1983) note that teenage smokers are generally doing less well at meeting academic expectations. Murray et al. (1983) found that children who truanted or were
dissatisfied with school were more likely to smoke. None of the studies have associated any gender-based difference with this factor.

Smoking has been associated with rebelliousness and generally reflects negative attitudes towards authority (Surgeon General's Report, 1980). Gritz (1982) adds that the attitude of rebellion and anti-authority is more pronounced in girls. Personality factors such as extroversion and neuroticism are cited by Flay et al. (1983) and later by Reid (1985) as being associated with both sexes. Flay et al. (1983) adds that the link between personality and smoking is unclear, and Urberg & Robbins (1981) have concluded that personality is unrelated to smoking behaviour.

There is some question as to whether knowledge of the risks of smoking have any effect on smoking behaviour. While McNiell et al. (1988) state that there is no link, Flay et al. (1983) and College of Physicians (1977) had concurred that most school children know of the health risks of smoking though those less aware were more likely to smoke. Urberg & Robbins (1981) found that girls saw health costs as being more important. Chassin et al. (1981) report that girls consider smoking to be more unhealthy than did their male contemporaries.

A factor that is clearly different for boys and girls is the belief that smoking helps control weight. Gritz (1986) notes that feminine beauty has often been equated with slimness. Both Gritz (1986) and Reid (1985) report that smoking by girls is motivated by the belief that it helps control weight.
Charlton (in Gritz 1986) reported that girls are more likely to agree that smoking keeps weight down and the belief that smoking controls weight correlates to smoking in post pubertal girls.

**Smoking and Western Australian School Children**

Recent research in Australia and Western Australia indicates that a significant proportion of school children smoke. Overall, smoking patterns in Western Australia appear better than the nationwide trend. In general, smoking prevalence among adolescents in Western Australia is lower than that of adolescents Australia wide.
## Table 2 Cigarette Consumption among School Children in year eight (13 years) in Western Australia and Australia

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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>2059</td>
<td>506</td>
<td>(233)</td>
</tr>
<tr>
<td>F</td>
<td>2038</td>
<td>486</td>
<td>(268)</td>
</tr>
<tr>
<td>Never Smoked</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>31%</td>
<td>35%</td>
<td>(32)</td>
</tr>
<tr>
<td>F</td>
<td>37%</td>
<td>42%</td>
<td>(42)</td>
</tr>
<tr>
<td>A few puffs only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>31%</td>
<td>35%</td>
<td>(32)</td>
</tr>
<tr>
<td>F</td>
<td>29%</td>
<td>28%</td>
<td>(31)</td>
</tr>
<tr>
<td>Up to 10 cigarettes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>13%</td>
<td>12%</td>
<td>(15)</td>
</tr>
<tr>
<td>F</td>
<td>11%</td>
<td>13%</td>
<td>(11)</td>
</tr>
<tr>
<td>More than 10 cigarettes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>25%</td>
<td>18%</td>
<td>(21)</td>
</tr>
<tr>
<td>F</td>
<td>23%</td>
<td>18%</td>
<td>(16)</td>
</tr>
<tr>
<td>Smoked in past year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>38%</td>
<td>25%</td>
<td>(33)</td>
</tr>
<tr>
<td>F</td>
<td>39%</td>
<td>30%</td>
<td>(29)</td>
</tr>
<tr>
<td>Smoked in past month</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>22%</td>
<td>12%</td>
<td>(18)</td>
</tr>
<tr>
<td>F</td>
<td>23%</td>
<td>19%</td>
<td>(17)</td>
</tr>
</tbody>
</table>

(Australian Statistics: Hill et al., 1987)
(Western Australian Statistics: Clark & Shean, 1989)

A Western Australian study by Clark & Shean (1987) indicates that gender differences in smoking prevalence are evident in each age group, with earlier experimentation typical in boys, though by secondary school, more girls are smoking than boys. By year ten, there is a substantial difference; 48% of girls and 38% of boys have smoked more than ten cigarettes in their lives. In year eight, both boys' and girls' groups showed that 18% had smoked more than ten cigarettes in their lives. A higher percentage of females however, are regular smokers in year eight, (boys 7% and girls 10%). A result of interest, is that those who have never smoked or have smoked few "puffs" only, was less common among year eight boys in 1987 than in 1984. Meanwhile, the number of girls who have experimented has increased.
Health Education and Smoking

All year eight students at Balga Senior High School have completed a compulsory unit of Health Education which included approximately eight lessons on smoking. Aspects of this course include long and short term effects, health costs, peer influence and cigarette advertising. Objectives covered are part of the Health Education K-10 syllabus. Other objectives concerning smoking appear in the year six course.

Chassin et al. (1981) and Armstrong et al. (1989) see education as an important preventative measure because cessation of smoking is a far more difficult and less effective procedure. In addition, they maintain that those who receive education about smoking, are more receptive to anti-smoking messages later in life. Clark & Shean (1989) report that the current programme is producing positive results in Western Australia and suggest that smoking education be extended across other year groups in primary and secondary school. Flay et al. (1983) suggest that intervention programmes should begin early in primary school and should address the issue of the role modelling influence of smoking parents, siblings and peers. Urberg & Robbins (1981), and McNeill et al. (1988) specify that there is a need for gender-based intervention programmes. Gritz (1986) asserts that health education programmes need to make non-smoking look appealing.

Armstrong et al. (1989) are concerned that education is made less effective because the influence of advertising is overpowering. They believe that government action against cigarette advertising is important and write that "...the most
effective action against smoking in children lies not with the teacher but with the politician."

(1989, p.19)

It is hoped that investigation into the smoking habits of the school children at Balga Senior High School will help identify special problems unique to that population. Adaptations made to the Health Education K-10 syllabus may better address the intervention needs of these adolescents and ultimately lead to health enhancement of the students and community.
SUMMARY

When considering the acquisition of smoking, the literature suggests a number of factors that may effect boys and girls differently. The questionnaire has been developed to investigate these factors.

Several of the studies cited in this review were carried out in countries other than Australia. While it can be assumed that Western countries are in some ways culturally similar, some of the findings in overseas studies may not accurately reflect the situation in Australia. Factors that effect smoking acquisition may well vary between countries.

Areas of possible gender related difference are:-

* Age of experimentation
* Peers
* Family
* Advertising
* Self Esteem
* Smoking and perceived maturity
* Socioeconomic status
* Academic achievement
* Rebelliousness
* Health risk
* Weight control
CHAPTER 3

METHODOLOGY

Research Design

This quantitative study utilized a survey to explore aspects of smoking behaviour among year eight students at Balga Senior High School. Frequency patterns were identified and used to compare with a broader population of year eight students in Western Australia. Frequencies for boys and girls were established separately to explore gender based differences.

Questionnaire

The questionnaire consisted of items taken from a national study on smoking prevalence among adolescents, and others devised to meet the specific objectives of the research. Permission was granted from Ruth Shean of the Australian Council of Smoking and Health to use selected items from the instrument used in Western Australia and Australia-wide (see Appendix I, items 1, 2, 4, 7, 8, 10, 12 and 13).

The specific items developed for this research were constructed to explore the reasons for smoking behaviour that were possibly different between boys and girls. In the literature, such reasons as weight control and parental smoking habits were suggested as being possible differences. Items consisted of closed, limited response questions and several attitudinal items employing a Likert scale. The last question allowed for an open response.
The questionnaire was constructed after extensive analysis of other instruments and the study of questionnaire development. Face validity was assessed by several authorities.

Test retest reliability was assessed with a group of fifteen students. This group completed the questionnaire nine days after the principal survey. A Pearson's product moment correlation yielded an $r = 0.994$ (significant at .01 level).

**Pilot Studies**

The questionnaire was trialed first with a few individuals, the same age group as the sample population. A few changes were adopted to improve clarity of questions. A second pilot was undertaken with a class of thirty year eight students in another school. This pilot study was useful in improvement of the administration of the questionnaire and computer analysis.

**Sample Population**

The School Development Plan (1989) describes Balga Senior High School as an established, metropolitan school of approximately 870 students. These students come from a community where unemployment is considerably higher than the national average, and over 25% of residents receive pensions which places them well below the poverty line. As a consequence, approximately 50% of the students receive financial assistance.
Many students display poor literacy and numeracy skills, and there is a high degree of truancy. These factors combine to produce low self esteem, low academic performance and expectations and poor employment prospects.

One hundred and three year eight students were randomly selected from a total population of 210 to complete the survey.

**Data Collection**

One hundred and three students were randomly selected from class lists with students in reserve in the case of absentees. Groups of thirty took approximately fifteen minutes to complete the questionnaire, including administration time. The thirty students were assembled into two groups of fifteen in one of two classrooms. Three groups of thirty students were surveyed during an eighty minute lesson. It was hoped that small groups in different classrooms, away from the normal teacher would increase the validity and reliability of the survey (Hill et al., 1987). Intergroup discussion was minimised as each group of fifteen came from different classes around the school and there were no breaks during the time of the survey.

Students completed the questionnaire at individual desks after a brief explanation of the procedure and importance of the survey. Papers and pencils were set out before the students entered the room.
Ethical Considerations

Confidentiality and anonymity were assured to all respondents. The students also had the right to refuse to complete the questionnaire, although none exercised this option. On discussion with the principal, it was decided that parents would be made aware of the study by means of a general notice in the school newsletter. This was circulated in August 1989.

Analysis of Results

Data were organised into nominal scales or classifications; initially the test was divided into two sets, male and female. One or two further classifications were developed so that gender-based comparisons would be made for a number of items. For example, male and female groups were separately divided into groups of smoking behaviour. Other items required three categories; sex, smoking behaviour and parental smoking behaviour, or attitude to advertising. Two examples of cross-breaks to demonstrate relationships follow:

Example a) Gender Difference For Smoking

<table>
<thead>
<tr>
<th></th>
<th>NEVER SMOKED</th>
<th>A FEW PUFFS ONLY</th>
<th>&lt; 10 CIGARETTES</th>
<th>&gt; 10 CIGARETTES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>G</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Example b) Relationship between gender, smoking behaviour and mother's smoking behaviour.

<table>
<thead>
<tr>
<th>MOTHER SMOKES</th>
<th>NEVER SMOKED</th>
<th>EXPERIMENTAL SMOKER</th>
<th>REGULAR SMOKER</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Smoking behaviour was classified into three groups: those who had never smoked, experimental smokers and regular smokers. For most results, the categories of regular smokers and those who had never smoked were compared. The category of experimental smokers included a large range of smoking experience; those who had smoked but were not regular smokers. It was not the intention of the study to investigate factors which lead students to experiment with cigarettes, rather the factors which have caused students to become regular smokers. Therefore, only students classified as regular smokers are investigated. For comparative purposes, data on students who have never smoked has been reported beside that at regular smokers. Results about experimental smokers, however, were of concern when considering intention to smoke (item 13). Knowledge about experimental smokers' intention to smoke could be important in the development of intervention programmes. All raw scores were changed into percentages. A chi-square test was used to assess any significant differences between categories. Analysis was performed using the computer statistical package, LERTAP.
**Limitations of the Study**

a) Due to the selection of a specific sample, the results of this study will have limited generalisability for other populations.

b) Self esteem and attitudes toward advertising, authority and conformity are difficult to measure. The items measuring these attitudes involve the selection of the most preferred alternative and as such, may not truly indicate the actual attitude of the respondent.

c) Honesty of the respondents can never be completely ensured. Measures were taken to administer the questionnaire in such a way that is conducive to attaining integrity of responses.

d) The number of regular smokers within the sample population and indeed within the whole of the year eight population at Balga Senior High School was small. (Regular smokers in the sample population; 4 boys and 11 girls). Although absolute comparisons could be made, statistical significance was difficult to obtain.
CHAPTER 4

RESULTS

Gender Differences in Smoking Prevalence

Table 3 shows that there are differences in smoking prevalence between boys and girls in this sample population. 80% of boys have never smoked a cigarette or have smoked only a few puffs, while less girls (71%) fall into this category. This difference is absolute, but not statistically significant.

More boys than girls have smoked up to ten cigarettes, (boys 12%, girls 7%). In contrast, substantially more girls (22%) smoked more than ten cigarettes compared with boys (8%).

The results indicate that more girls have smoked a cigarette during the past year, and also during the past month. The percentages of regular smokers, both boys and girls, are the same as percentages for those who have smoked during the past month.

More girls than boys smoke regularly, (girls 16%, boys 8%). The results in this section are not statistically significant although there are differences in absolute terms.
### TABLE 3  Smoking Behaviour; Comparisons Between Year Eight Students at Balga Senior High School and Others in Western Australia

<table>
<thead>
<tr>
<th>SMOKER CATEGORY</th>
<th>SEX</th>
<th>W.A. (1987)%</th>
<th>BALGA (1989)%</th>
<th>EXPECTED RESULTS%</th>
<th>ACTUAL RESULTS%</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEVER SMOKED</td>
<td>B</td>
<td>35</td>
<td>42</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>42</td>
<td>38</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td>A FEW PUFFS</td>
<td>B</td>
<td>35</td>
<td>38</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>ONLY</td>
<td>G</td>
<td>28</td>
<td>33</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>UP TO 10</td>
<td>B</td>
<td>12</td>
<td>12</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>CIGARETTES</td>
<td>G</td>
<td>13</td>
<td>7</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>MORE THAN 10</td>
<td>B</td>
<td>18</td>
<td>8</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>CIGARETTES</td>
<td>G</td>
<td>18</td>
<td>22</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>SMOKED IN PAST</td>
<td>B</td>
<td>25</td>
<td>25</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>YEAR</td>
<td>G</td>
<td>30</td>
<td>36</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>SMOKED IN PAST</td>
<td>B</td>
<td>12</td>
<td>8</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>MONTH</td>
<td>G</td>
<td>19</td>
<td>16</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>REGULAR SMOKERS</td>
<td>B</td>
<td>7</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>10</td>
<td>16</td>
<td>6</td>
<td>9</td>
</tr>
</tbody>
</table>

| SAMPLE SIZE     | B   | 506          | 48            |
|                 | G   | 486          | 55            |

(Western Australian Statistics: Clark & Shean, 1987)

(Note: Expected and actual results were computed to show a representative chi-square)

**Smoking Prevalences: Balga Senior High**

Table 3 shows that there are more regular smokers at Balga Senior High School (12%) than in the population of year eights generally in Western Australia (8%). Fewer students at Balga have never smoked or have smoked a few puffs only.
More girls at Balga are regular smokers though the boys figures are similar to other boys in the state. Proportionately more boys in the sample population have never smoked, although the reverse can be said for girls when compared to Western Australian figures. The results in this section are not statistically significant.

**Smoking Behaviour: Gender Related Differences**

**Experimentation**

<table>
<thead>
<tr>
<th>AGE</th>
<th>B %</th>
<th>G %</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNDER 7 YRS</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>7 YRS</td>
<td>18</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>8 YRS</td>
<td>4</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>9 YRS</td>
<td>7</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>10 YRS</td>
<td>4</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>11 YRS</td>
<td>18</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>12 YRS</td>
<td>36</td>
<td>30</td>
<td>33</td>
</tr>
<tr>
<td>13 YRS</td>
<td>11</td>
<td>12</td>
<td>11</td>
</tr>
</tbody>
</table>

Across the whole group, a substantial number of those who have ever tried smoking, did so around the start of secondary school (33%). Girls are slightly less likely to begin smoking at the age of seven or younger, though appear to catch up in later primary school years. These findings substantiate other studies, but the difference in results between boys and girls is not statistically significant.

A large proportion of students (64%) smoked their first cigarette with a friend. More boys (71%) first smoked with a friend, whereas slightly more girls first smoked with a parent, sister or alone. Table 5 shows these results.
Family Influences

Regular smokers of this sample population are more likely to have a brother who smokes when compared to those who have never smoked or are experimental smokers. There appears no gender related difference on this point. Regular smokers are more likely to have a sister that smokes. Boys are significantly more likely to have a sister who smokes compared with girls (p<0.05 chi square for difference between boys and girls)

Almost all of the girls who smoke regularly (91%) also have mothers who smoke. This is quite different to other girls in the sample population and also boys who smoke regularly. Girls who are regular smokers are more likely to have a father who smokes (64%). The opposite can be said for boys. Most boys who have never smoked (70%) or have smoked experimentally (61%) have a father who smokes, whereas only 25% of regular smokers do. These results were not statistically significant.
TABLE 6 Smoking Behaviour and Family Members

<table>
<thead>
<tr>
<th></th>
<th>REGULAR SMOKER %</th>
<th>EXPERIMENTAL SMOKER %</th>
<th>NEVER SMOKED %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>G</td>
<td>B</td>
</tr>
<tr>
<td>BROTHER SMOKES</td>
<td>25</td>
<td>27</td>
<td>16</td>
</tr>
<tr>
<td>SISTER SMOKES</td>
<td>75*</td>
<td>18*</td>
<td>7</td>
</tr>
<tr>
<td>FATHER SMOKES</td>
<td>25</td>
<td>64</td>
<td>61</td>
</tr>
<tr>
<td>MOTHER SMOKES</td>
<td>45</td>
<td>91</td>
<td>50</td>
</tr>
</tbody>
</table>

(* p<0.05 chi square for difference between boys and girls)

Peers and Smoking

There was no gender related difference between smoking behaviour and the smoking behaviour of peers. Boys and girls who were regular smokers had no friends who had never smoked. The regular smokers were more likely to respond that most or at least a few of their friends smoked. Of those students who had never smoked, the opposite trend was apparent. Most of their friends had never smoked.

TABLE 7 Smoking Behaviour of Friends

<table>
<thead>
<tr>
<th>FRIENDS WHO SMOKE</th>
<th>REGULAR SMOKER %</th>
<th>NEVER SMOKED %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>G</td>
</tr>
<tr>
<td>NONE</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FEW</td>
<td>50</td>
<td>18</td>
</tr>
<tr>
<td>MOST</td>
<td>50</td>
<td>82</td>
</tr>
</tbody>
</table>
Most of the group said that it was important to get on with their friends. Most girls strongly agreed with the statement, "It is important to me to get on with my friends". Regular smokers were more likely to agree with this statement, but there was no gender-related difference in results.

**TABLE 8** Analysis of Responses to "It is important to me to get on with my Friends".

<table>
<thead>
<tr>
<th>SEX</th>
<th>STRONGLY AGREE</th>
<th>AGREE</th>
<th>DISAGREE</th>
<th>STRONGLY DISAGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGULAR SMOKERS</td>
<td>B 100 G 91</td>
<td>0 9</td>
<td>0 0</td>
<td>0 0</td>
</tr>
<tr>
<td>NEVER SMOKED</td>
<td>B 60 G 62</td>
<td>40 33</td>
<td>0 0</td>
<td>0 0</td>
</tr>
</tbody>
</table>

Almost all the students who had never smoked disagreed with the statement, "People my age who smoke are more sociable than those who don't smoke". Most of the regular smokers agreed with the same statement, and more girls than boys who were regular smokers agreed. This was not, however, a gender related difference of statistical significance.

**TABLE 9** Analysis of Responses to "People my age who smoke are more sociable than those who don't smoke".

<table>
<thead>
<tr>
<th>SEX</th>
<th>STRONGLY AGREE</th>
<th>AGREE</th>
<th>DISAGREE</th>
<th>STRONGLY DISAGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGULAR SMOKERS</td>
<td>B 50 G 45</td>
<td>0 45</td>
<td>25 9</td>
<td>25 1</td>
</tr>
<tr>
<td>NEVER SMOKED</td>
<td>B 0 G 0</td>
<td>17 0</td>
<td>50 55</td>
<td>30 45</td>
</tr>
</tbody>
</table>
Advertisements and Brand Preferences

Students who were regular smokers were asked to state the brand of cigarettes that they usually smoked. For both boys and girls, Winfield (50%) and Peter Jackson (50%) were equally popular as a choice of cigarettes.

Almost all of those who had never smoked disagreed with the statement, "I enjoy looking at cigarette advertisements". To a lesser extent, the regular smokers felt the same way, though more boys in this group appeared to enjoy watching the advertisements than girls who smoked regularly.

**TABLE 10** Analysis of Responses to "I enjoy looking at cigarette advertisements".

<table>
<thead>
<tr>
<th></th>
<th>SEX</th>
<th>STRONGLY AGREE %</th>
<th>AGREE %</th>
<th>DISAGREE %</th>
<th>STRONGLY DISAGREE %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REGULAR SMOKERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>0</td>
<td>25</td>
<td>0</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>0</td>
<td>9</td>
<td>64</td>
<td>27</td>
</tr>
<tr>
<td><strong>NEVER SMOKED</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>0</td>
<td>0</td>
<td>35</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>0</td>
<td>5</td>
<td>32</td>
<td>63</td>
</tr>
</tbody>
</table>

Well over half of the sample populations (66%) said that smoking advertisements should be banned. Regular smokers were more likely to disagree with this and particularly regular smokers who were boys. The gender-related difference was not statistically significant.
TABLE 11 Analysis of Responses to "Cigarette advertising should be banned".

<table>
<thead>
<tr>
<th>SEX</th>
<th>STRONGLY AGREE %</th>
<th>AGREE %</th>
<th>DISAGREE %</th>
<th>STRONGLY DISAGREE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGULAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMOKERS</td>
<td>B 0</td>
<td>25</td>
<td>0</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>G 27</td>
<td>27</td>
<td>27</td>
<td>18</td>
</tr>
<tr>
<td>NEVER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMOKED</td>
<td>B 55</td>
<td>25</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>G 55</td>
<td>15</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

Self Esteem

Most of the sample population (73%) felt that there were a lot of things they would like to change about themselves. Regular smokers (86%) were more likely to agree with this than those who had never smoked (75%). All of the boys who smoked regularly, strongly agreed that they would like to change themselves. Gender-related differences were not statistically significant.

TABLE 12 Analysis of Responses to "There are lots of things that I would change in me if I could".

<table>
<thead>
<tr>
<th>SEX</th>
<th>STRONGLY AGREE %</th>
<th>AGREE %</th>
<th>DISAGREE %</th>
<th>STRONGLY DISAGREE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGULAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMOKERS</td>
<td>B 100</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>G 45</td>
<td>27</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>NEVER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMOKED</td>
<td>B 30</td>
<td>55</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>G 15</td>
<td>50</td>
<td>30</td>
<td>5</td>
</tr>
</tbody>
</table>
Socioeconomic Status and School Work

Most of the sample population perceived themselves to be average or above average in their schoolwork. Their actual performances were not ascertained. None of the students who had never smoked considered themselves to be in the below average or well below average categories whereas 26% of the regular smokers perceived themselves to be in these categories. More girls than boy smokers considered themselves to be above average or well above average.

**TABLE 13 Relationship between Smoking and Perceived Success in Schoolwork**

<table>
<thead>
<tr>
<th></th>
<th>WELL ABOVE</th>
<th>ABOVE</th>
<th>BELOW</th>
<th>WELL BELOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEX</td>
<td>AVERAGE %</td>
<td>AVERAGE %</td>
<td>AVERAGE %</td>
<td>AVERAGE %</td>
</tr>
<tr>
<td>REGULAR smoker</td>
<td>B 0 25 50 25</td>
<td>0</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>G 18 27 27 9</td>
<td>18</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>NEVER smoker</td>
<td>B 10 30 60 0</td>
<td>10</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>G 5 33 62 0</td>
<td>5</td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

Students who had never smoked tended towards academic aspirations that involved tertiary study, and most of these students wanted to at least complete year twelve. None of the regular smokers had tertiary education aspirations. Most boys who smoked regularly thought that they would go to technical college, while most girls of this group considered that they would leave school before or at the completion of year ten.
TABLE 14. Smoking Behaviour and Academic Aspirations

<table>
<thead>
<tr>
<th></th>
<th>UNIVERSITY COLLEGE %</th>
<th>TECHNICAL COLLEGE %</th>
<th>YR12 %</th>
<th>YR11 %</th>
<th>YR 10%</th>
<th>&lt;YR10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGULAR SMOKERS</td>
<td>B 0</td>
<td>75</td>
<td>25</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>G 0</td>
<td>9</td>
<td>18</td>
<td>0</td>
<td>55</td>
<td>18</td>
</tr>
<tr>
<td>NEVER SMOKED</td>
<td>B 30</td>
<td>15</td>
<td>35</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>G 57</td>
<td>5</td>
<td>24</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

Rebelliousness

Regular smokers were more likely to agree that people in year eight smoked to annoy adults than other students. Boys and girls responded similarly for this statement.

TABLE 15 Analysis of Responses to "People my age smoke to annoy adults".

<table>
<thead>
<tr>
<th></th>
<th>SEX</th>
<th>STRONGLY AGREE %</th>
<th>AGREE %</th>
<th>DISAGREE %</th>
<th>STRONGLY DISAGREE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGULAR SMOKERS</td>
<td>B 50</td>
<td>0</td>
<td>25</td>
<td>25</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>G 18</td>
<td>36</td>
<td>27</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>NEVER SMOKED</td>
<td>B 5</td>
<td>25</td>
<td>50</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G 5</td>
<td>35</td>
<td>45</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

Health Risks

The whole of the sample population tended to disagree with the statements "I don't think that smoking affects your health very much", and "Smokers are as healthy as non-smokers". Girls were more likely to disagree with the statements whether they be regular smokers or not. Results of these two items verify each other.
TABLE 16  Analysis of Responses to "I don't think that smoking affects your health very much".

<table>
<thead>
<tr>
<th>SEX</th>
<th>STRONGLY AGREE %</th>
<th>AGREE %</th>
<th>DISAGREE %</th>
<th>STRONGLY DISAGREE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGULAR SMOKERS</td>
<td>B</td>
<td>0</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>0</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>NEVER SMOKED</td>
<td>B</td>
<td>10</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

TABLE 17  Analysis of Responses to "Smokers are as healthy as non smokers"

<table>
<thead>
<tr>
<th>SEX</th>
<th>STRONGLY AGREE %</th>
<th>AGREE %</th>
<th>DISAGREE %</th>
<th>STRONGLY DISAGREE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGULAR SMOKERS</td>
<td>B</td>
<td>0</td>
<td>59</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>0</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>NEVER SMOKED</td>
<td>B</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>0</td>
<td>0</td>
<td>25</td>
</tr>
</tbody>
</table>

Weight Control

Most students disagreed with the statement, "Smoking helps control your weight". Of significance, however, is that boys who smoke regularly (75%) were far more likely than girls who smoke regularly (0%) to agree that smoking helps with weight control (p<0.05 chi square for difference between boys and girls).
TABLE 18 Analysis of Responses to "Smoking helps to control your weight".

<table>
<thead>
<tr>
<th>SEX</th>
<th>STRONGLY AGREE %</th>
<th>AGREE %</th>
<th>DISAGREE %</th>
<th>STRONGLY DISAGREE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGULAR SMOKERS</td>
<td>B 50</td>
<td>25</td>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>G 0</td>
<td>0</td>
<td>55</td>
<td>45</td>
</tr>
<tr>
<td>NEVER SMOKED</td>
<td>B 0</td>
<td>5</td>
<td>55</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>G 0</td>
<td>15</td>
<td>20</td>
<td>65</td>
</tr>
</tbody>
</table>

Smoking and Perceived Maturity

Most students responded with disagreement to the statement "Smoking makes people appear more mature". Boys who were regular smokers were more likely to agree (25%) than girls in the same group (0%).

TABLE 19 Analysis of Responses to "Smoking makes people appear more mature".

<table>
<thead>
<tr>
<th>SEX</th>
<th>STRONGLY AGREE %</th>
<th>AGREE %</th>
<th>DISAGREE %</th>
<th>STRONGLY DISAGREE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGULAR SMOKERS</td>
<td>B 0</td>
<td>25</td>
<td>75</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>G 0</td>
<td>0</td>
<td>45</td>
<td>55</td>
</tr>
<tr>
<td>NEVER SMOKED</td>
<td>B 0</td>
<td>15</td>
<td>15</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>G 0</td>
<td>10</td>
<td>14</td>
<td>76</td>
</tr>
</tbody>
</table>

Intention to Smoke

Most of the sample population (67%) responded that they were certain not to be smoking at this time next year. All of those who had never smoked considered that it was unlikely, very unlikely or certain that they would not be smoking this time next year. 9% of those who were experimental smokers were undecided as to whether they would be smoking in the future, and
4% of experimental smokers considered that it was likely that they would.

Most of the girls already smoking regularly stated that they would be smoking in the future. 25% of boys who were regular smokers were certain that they would not be smoking this time next year while others were certain that they would be, or undecided.

**TABLE 20** Intention to Smoke

<table>
<thead>
<tr>
<th>INTENTION TO SMOKE IN ONE YEAR</th>
<th>NEVER SMOKED %</th>
<th>EXPERIMENTAL SMOKER %</th>
<th>REGULAR SMOKER %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>G</td>
<td>B</td>
</tr>
<tr>
<td>CERTAIN NOT TO BE</td>
<td>84</td>
<td>86</td>
<td>79</td>
</tr>
<tr>
<td>VERY UNLIKELY</td>
<td>5</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>UNLIKELY</td>
<td>11</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>UNDECIDED</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>LIKELY</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>VERY UNLIKELY</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CERTAIN TO BE</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
In absolute terms, more girls than boys are regular smokers among year eight students at Balga Senior High School. The difference, however, did not prove to be statistically significant; therefore, the null hypothesis could not be rejected. This hypothesis was stated as follows: The smoking prevalence is the same for boys and girls among year eight students at Balga Senior High School.

When the proportion of regular smokers among the study population was compared with others in Western Australia, there was no statistically significant difference. In absolute terms, it appeared that there were proportionally more regular smokers within the Balga population. As was suggested in the literature review, smoking prevalence among lower socio-economic groups tends to be higher than in other populations. This trend is not significantly higher. Therefore, the null hypothesis can not be rejected. The hypothesis stated that: The smoking prevalence among year eight students at Balga Senior High School is the same as other year eight students in Western Australia.
Gender Related Differences

The factors that influence taking up smoking on a regular basis appear to have some gender related differences. Two of these differences are supported statistically. One significant finding was that more boys than girls who had taken up smoking on a regular basis, had a sister who smoked. Several points for discussion are raised from this finding. It is possible that boys are more affected by family influences than girls. This study does not consider how many siblings a student has, nor his or her position in the family. The literature review revealed that older siblings are important role models. Therefore, sibling order could be an important factor. Future research should explore sibling order when investigating the influence of siblings.

The second significant finding in this study was that boys who were regular smokers were more likely than their female counterparts, to consider that smoking assisted with weight control. This finding contradicts findings by Reid (1985) and Gritz (1986). It is possible that girls of this age are not yet old enough to be concerned about weight control. The same could be said about boys of this age, but the boys may be reflecting views held by older sisters and their mothers. Further research could explore this finding among a larger population.

Two differences that did not prove significant within this population warrant further investigation. Results were suggestive that girls are possibly more sensitive to peer pressure than boys whatever the smoking behaviour.
Secondly, boys of this population appeared less concerned with health costs than did the girls.

The third null hypothesis stated that: The reasons for taking up smoking among year eight students at Balga Senior High School are the same for boys and girls. Two gender related differences were proved to be statistically significant; those of attitude towards smoking and weight control, and having a sister who smoked. Therefore, this null hypothesis can be rejected.

Recommendations
Both the review of literature and this study indicate that useful changes could be adapted by school smoking education programmes. There is room for gender specific interventions, although further research among larger populations may be necessary to determine the extent of this need.

It is important that comprehensive smoking education programmes begin as early as junior primary school. Primary school teachers should be made aware that children will experiment with cigarettes as early as year one. A responsibility lies with these teachers to conscientiously cover the appropriate objectives. The Health Education K-10 Syllabus prescribes a limited number of smoking related objectives in pre-primary, and years three, five and six. The inclusion of more objectives related to health costs and the influence of the media, family and friends could prove profitable.
Smoking is covered most comprehensively in year eight, which is appropriate because it is likely that many children will experiment and possibly begin to smoke regularly at this age. The transition to secondary school is a crucial period for smoking experimentation. Therefore, the relevant objectives should be taught early in year eight. To combat the powerful influence of peer pressure, teaching strategies that enhance self esteem, assertiveness and decision-making should be adopted.

Individual schools should be encouraged to carry out their own needs assessment and develop a school-based curriculum using Health Education K-10 syllabus as a framework.

Results suggest that poor school achievement and low academic aspirations relate to smoking behaviour. This finding confirms work by Flay et al (1983) and Murray et al (1983). It may be profitable to target students in lower achieving groups for extra intervention strategies.

Finally, the impact of the media and smoking advertisements is difficult to ascertain, but results suggest that students at Balga prefer the most advertised brands as reported by Hill et al (1987) and Armstrong et al (1989). School intervention programmes need to address the impact of the media and ideally, legislation banning cigarette advertising would strongly support the work of educators.
GLOSSARY

Adolescence. Developmental period between childhood and adulthood.

Experimental Smoker. A person who has tried smoking at least once, but is not a regular smoker.

Health Education. Activities included in the school curriculum which facilitate positive adaptations to health.

Health Education K-10 Syllabus. Western Australian Health Education syllabus designed for school children from pre-school to year ten.

Health Enhancement. Improvement in the health status of an individual.

Health Promotion. Informing and educating the community about health. (Hetzel 1980, p. 260).

Intensity. A quantifiable measure to which a behaviour occurs, eg number of cigarettes per day.

Intervention. Preventing and/or modifying negative health behaviours.

Morbidity. Prevalence of disease within a community/population.

Mortality. Death rate within a population.

Peer Pressure. Influence exerted by friends or contemporaries on others to behave a certain way.

Prevalence. Amount within a population given to certain behaviour, eg smoking.

Regular Smoker. A person who smokes one or more cigarettes a week (Clark & Shean, 1989).

Self Esteem. A personal judgement of the worthiness that is expressed in the attitudes the individual holds towards himself (Coopersmith, 1981).
APPENDIX 1

SURVEY

This survey asks some questions about things that you do. Some of the questions are about smoking. Your answers will not be shown to anyone who knows you and you don't have to put your name on the paper. We would like you to answer every question if you can, but if you would rather not answer a question, miss it out and go on to the next one.

For most of the questions there is a choice of answers. You choose the one that best answers for you, and tick the space next to it. In some places there is a space for you to write extra information.

Here are some examples:

(a) Have you eaten a chocolate bar during the past week?

Yes ( )
No (IF NO, GO TO QUESTION C) ( )

(b) What type of chocolate bar do you usually eat?

Mars bar ( )
Crunch bar ( )
Snickers bar ( )
Other ( )

(c) For this question, circle your choice.

SA - Strongly agree
A - Agree
D - Disagree
$D$ - Strongly disagree

Too much chocolate is dangerous to your health.

SA A D $D$
1. Are you a boy or a girl?
   Boy ( ) 1
   Girl ( ) 2

2. At schoolwork, do you consider yourself to be
   Well above average ( ) 1
   Above average ( ) 2
   Average ( ) 3
   Below average ( ) 4
   Well below average ( ) 5

3. When do you think that you will leave school?
   After University or college ( ) 1
   After technical college ( ) 2
   At the end of year 12 ( ) 3
   At the end of year 11 ( ) 4
   At the end of year 10 ( ) 5
   Before the end of year 10 ( ) 6

4. Have you ever smoked even part of a cigarette?
   Yes, a few puffs ( ) 1
   Yes, I've smoked fewer than 10 cigarettes in my life ( ) 2
   Yes, I've smoked more than 10 cigarettes in my life ( ) 3
   No (IF NO, GO TO NO. 13) ( ) 4

5. At what age did you smoke your first cigarette?
   Under 7 ( ) 1
   7 ( ) 2
   8 ( ) 3
   9 ( ) 4
   10 ( ) 5
   11 ( ) 6
   12 ( ) 7
   13 ( ) 8

6. Who were you with when you first smoked a cigarette?
   Friend ( ) 1
   Parent ( ) 2
   Brother ( ) 3
   Sister ( ) 4
   By yourself ( ) 5
   Other.... ( ) 6
7. Have you smoked a cigarette in the last 12 months?  
Yes ( ) 1  
No (IF NO, GO TO NO. 13) ( ) 2  

8. Have you smoked a cigarette in the last 4 weeks?  
Yes ( ) 1  
No ( ) 2  

9. Have you smoked a cigarette in the last week?  
Yes ( ) 1  
No ( ) 2  

10. Do you usually smoke cigarettes one or more times a week?  
Yes ( ) 1  
No (IF NO, GO TO NO. 13) ( ) 2  

11. About how many cigarettes do you usually smoke in one week?............  

12. What brand do you usually smoke?  
Alpine ( ) 1  
Benson & Hedges ( ) 2  
Dunhill ( ) 3  
Escort ( ) 4  
Marlboro ( ) 5  
Peter Jackson ( ) 6  
Sterling ( ) 7  
Wills Super Mild ( ) 8  
Winfield ( ) 9  
Other... ( ) 10  

THESE QUESTIONS ARE FOR EVERYONE  

13. Do you think that you will be smoking cigarettes this time next year?  
Certain not to be smoking ( ) 1  
Very unlikely to be smoking ( ) 2  
Unlikely to be smoking ( ) 3  
Can't decide how likely ( ) 4  
Likely to be smoking ( ) 5  
Very Likely to be smoking ( ) 6  
Certain to be smoking ( ) 7  

14. Do you have a brother who smokes?
15. Do you have a sister who smokes?
   Yes ( ) 1
   No ( ) 2

16. Does your mother smoke?
   Yes ( ) 1
   No ( ) 2

17. Does your father smoke?
   Yes ( ) 1
   No ( ) 2

18. Do many of your friends smoke?
   No ( ) 1
   A few of them ( ) 2
   Most of them ( ) 3

FOR THE NEXT TEN QUESTIONS, CIRCLE YOUR CHOICE
SA - Strongly agree
A - Agree
D - Disagree
SD - Strongly Disagree

19. There are lots of things that I would change in me if I could.
   SA  A  D  SD

20. It is important to me to get on with my friends.
   SA  A  D  SD

21. Smoking makes people appear more mature.
   SA  A  D  SD

22. I enjoy looking at cigarette advertisements.
   SA  A  D  SD
23. People my age smoke to annoy adults.
   SA  A  D  SD

24. I don't think that smoking affects your health very much.
   SA  A  D  SD

25. Cigarette advertising should be banned.
   SA  A  D  SD

26. Smokers are as healthy as non-smokers.
   SA  A  D  SD

27. Smoking helps to control your weight.
   SA  A  D  SD

28. People my age who smoke are more sociable than those who don't smoke.
   SA  A  D  SD

29. Give reasons why you DO or DO NOT smoke.............

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE. YOUR HELP IS APPRECIATED.
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